adduce the following: If the cystic duct or common duct is ligated, and the bile allowed to escape into the peritoneal cavity, no peritonitis results, while the reverse is true when the common or hepatic duct is ligated; the last procedure interrupts the stream of bile, and so affords an opportunity for organisms to extend up the duct. In the common duct, close above the papilla biliaris, organisms are generally present in considerable numbers.

MIYAKI ("Zur experimentellen Erzeugung d. Gallensteine m. besond. Berücksichtigung d. bakt. Verhaltens d. Gallenwege," *Ibid.*, Band vi., p. 479), in an examination of the bile of seventy-six dogs and rabbits, finds the gall-bladder sterile with one exception (small quantities of bile used in making cultures). From a study of a small number of animals he concludes that in the lower part of the common duct organisms are frequently present, and these are the normal inhabitants of the intestine.

Miyaki also investigated the pathological changes in the gall-bladder necessary to bring about the development of bacteria there. Ligature of the cystic duct produces no change, while ligation of the common duct close to the papilla bilaria causes an infection of the gall-bladder. The introduction of sterile foreign bodies into the gall-bladder produced infection in three out of eight experiments, while in three more animals in which the cystic duct was also ligated the gall-bladder remained sterile. Direct injury to the gall-bladder mucosa caused no infection. Organisms introduced into the gall-bladder, with or without the production of gall stasis, can be recovered in pure culture after periods varying from three days to one year and eight days.

This work seems to show: 1. That the bile is normally sterile in the gall-bladder and cystic and hepatic ducts. The common duct, except in the lower part, is also sterile. If organisms are normally present it is only in very scant numbers. 2. That organisms will multiply in the bile. 3. That conditions favorable to their entrance are not readily produced experimentally, but when introduced the organisms persist. 4. That gallstones favor their entrance, and in cases of cholelithiasis the gall-bladder is almost always infected. 5. That the mode of infection in these cases seems to be by way of the gall ducts from the intestine.—H. A. C.

The Source and Significance of the Cell Masses Occurring in the So-called Nævi of the Skin.—ABESSER (*Virchow's Archiv*, 1901, vol. clxvi., p. 40) says the characteristic feature of the nævus is composed of epithelial-like cells which occur singly, in clumps, and in bands in the papillæ and cutis of the skin. Two views obtain in regard to their origin: The first is that they are derived from the epiderm (Durante, 1871; Unna, 1893); the second, that they arise from the mesoderm (Demiéville, from the endothelium and perithelium of bloodvessels; v. Recklinghausen, from the endothelium of lymph vessels; Ribbert, from the chromatophores). Soldan (1899) regards nævi as neurofibromata. The epithelial origin was favored in 1897 by Waldeyer and Kölliker; later by Marchand and Orth.

Abesser studied in serial sections sixteen small nævi from adults. He found three types of cells present. The most common, which he calls the typical nævus cell, is a round or oval cell of the size of those in the epidermis. It has a vesicular, epithelial-like nucleus, and lightly staining, often invisible, protoplasm. These cells occur usually in round balls in the papillæ and the upper part of the cutis. The second kind of cell is small and flat, with a long oval nucleus, which is surrounded by a very little protoplasm; it occurs in thick bands of closely packed cells, which extend to the epidermis and deep into the cutis. The third form, called chromatophore, contains pigment; it varies greatly in size and shape; it may be branching, star-shaped, oval, or round.

The first noticeable characteristic of nævi is that a hypertrophy of the epidermis occurs in the region affected; the epidermis is thickened, the papillæ narrowed; the second characteristic is that the cells in the lowest layer of the epidermis undergo a metaplasia into nævus cells. A certain liquefaction first takes place, which separates the cells more or less from each other; the cells also lose their protoplasmic fibrillation. The cells are now free to escape into the underlying cutis. The writer compares the picture presented by the frayed epidermis between the papillæ as the nævus cells escape from it into the cutis to a splintered broom. Unna is inclined to believe that elastic and connective tissues play some part in forcing the nævus cells free from the epidermis. Frequently clumps of nævus cells are found within the epidermis surrounded by a single flattened layer of basal epithelium. Ribbert thinks that the nævus cells develop in the cutis and extend to and even press into the epidermis, thus forming the clumps of cells above mentioned.

The second, small, form of nævus cell is probably derived from the first, because all transitions in size between the two can be found.

The third form—the branched and polymorphous chromatophore—arises from the pigmented cells of the epidermis by the same process of metaplasia. This is shown by finding similarly branching pigmented cells in the epidermis and by tracing their escape into the cutis.

All three kinds of nævus cells are derived, therefore, in the writer's opinion, by metaplasia from the cells of the epidermis. They lose their protoplasmic fibrillation, but otherwise retain their epithelial character in that they produce no intercellular substance. The tumors which they give rise to should be classed as nævo-carcinomata.

[The fallacy in this work, if there is one, lies in drawing conclusions from the study of nævi from adults in whom it must be supposed that the process of development in the nævi has been quiescent for a great many years; therefore it is exceedingly doubtful if the lesions are in a stage in which they can be rightly interpreted. Nævi should be studied in young children at the time when the lesions are developing; then the process of metaplasia can be followed. The conclusions claimed as proved are too important to be accepted without further study of more favorable tissues.—F. B. M.]

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